

**Listing of Claims**

1           Claim 1 (Previously Presented): A method of providing differentiated services for IP  
2 packets transported on an asynchronous transfer mode (ATM) backbone, said method  
3 comprising:

4           provisioning a first switched virtual circuit (SVC) and a second SVC on said ATM  
5 backbone, each of said first SVC and said second SVC being provisioned as a unicast point-  
6 to-point virtual circuit terminating between same end devices;

7           receiving an IP packet;

8           determining whether to send said IP packet on said first SVC or said second SVC  
9 according to services desired to be provided for said IP packet, wherein said determining  
10 comprises examining a header of said IP packet and wherein said services desired for said  
11 IP packet being based on said header, said determining also comprising maintaining a data  
12 structure indicating a specific one of said first SVC and said second SVC on which to send  
13 IP packets having a specific precedence value in a type of service (TOS) field in said header;  
14 and

15           sending said IP packet on the determined one of said first SVC or said second SVC,  
16 wherein said IP packet is sent on either said first SVC or said second SVC according  
17 to the data stored in said data structure.

1           Claim 2: (Canceled)

1           Claim 3 (Currently Amended): The method of claim 1~~2~~, wherein said data structure  
2 comprises a table.

1           Claim 4 (Original): The method of claim 3, wherein said table indicates that a  
2 plurality of precedence values are to be mapped to the same SVC.

1           Claim 5 (Original): The method of claim 3, wherein said provisioning comprises  
2 initiating a set up request from a first router to a second router to set up said first SVC,  
3 wherein said first router and said second router interface directly with said ATM backbone,  
4 wherein said set up request is sent only after reception of a first IP packet to be sent on said

5 first SVC, wherein said first SVC is provisioned between said first router and said second  
6 router.

1 Claim 6 (Original): The method of claim 5, wherein said second router also sends on  
2 said first SVC the IP packets having the same precedence value as said first IP packet.

1 Claim 7 (Previously Presented): The method of claim 6, further comprising sending  
2 a precedence data from said first router to said second router, wherein said precedence data  
3 indicates that the precedence value of said first IP packet is to be associated with said first  
4 SVC such that said second router can send packets with the same precedence value on said  
5 first SVC.

1 Claim 8 (Previously Presented): The method of claim 7, wherein said precedence data  
2 is contained in a signaling set up message representing said set up request.

1 Claim 9 (Original): The method of claim 8, wherein said precedence data is encoded  
2 in a broadband higher layer information (BHLL) information element (IE) contained in said  
3 signaling set up message.

1 Claim 10 (Original): The method of claim 9, wherein each of said first router and said  
2 second router comprises an edge router.

1 Claim 11 (Previously Presented): The method of claim 5, wherein said table stores an  
2 IP address, a network service access point (NSAP) of said second router, a precedence value  
3 contained in said header, and a SVC identifier in each row.

1 Claims 12 -15 (Canceled)

1 Claim 16 (Currently Amended): A router for providing differentiated services for IP  
2 packets transported on an asynchronous transfer mode (ATM) backbone, said router  
3 comprising:

means for provisioning a first switched virtual circuit (SVC) and a second SVC on said ATM backbone, each of said first SVC and said second SVC being provisioned as a unicast point-to-point virtual circuit terminating between same end devices;

means for receiving an IP packet;

means for determining whether to send said IP packet on said first SVC or said second SVC according to services desired to be provided for said IP packet, wherein said means for determining examines a header of said IP packet to determine whether to send said IP packet on said first SVC or said second SVC and wherein said services desired for said IP packet being based on said header, wherein said means for determining further maintains a data structure indicating a specific one of said first SVC and said second SVC on which to send IP packets having a specific precedence value in a type of service (TOS) field in said header; and

means for sending said IP packet on the determined one of said first SVC or said second SVC,

wherein said IP packet is sent on either said first SVC or said second SVC according to the data stored in said data structure.

Claim 17: (canceled)

Claim 18 (Currently Amended): The router of claim ~~16~~<sup>17</sup>, wherein said data structure comprises a table.

Claim 19 (Original): The router of claim 18, wherein said table indicates that a plurality of precedence values are to be mapped to the same SVC.

Claim 20 (Previously Presented): The router of claim 18, wherein said means for provisioning initiates a set up request to another router to set up said first SVC, wherein said set up request is sent only after reception of a first IP packet to be sent on said first SVC, wherein said first SVC is provisioned to terminate at said another router.

1           Claim 21 (Original): The router of claim 20, wherein said another router also sends  
2           on said first SVC the IP packets having the same precedence value as said first IP packet.

1           Claim 22 (Previously Presented): The router of claim 21, further comprising means  
2           for sending a precedence data to said another router, wherein said precedence data indicates  
3           that the precedence value of said first IP packet is to be associated with said first SVC such  
4           that another router can send packets with the same precedence value on said first SVC.

1           Claim 23 (Previously Presented): The router of claim 22, wherein said precedence  
2           data is encoded in a broadband higher layer information (BHLL) information element (IE)  
3           contained in a Signaling set up message.

1           Claims 24 - 26 (Canceled)

1           Claim 27 (Currently Amended): A computer readable medium carrying one or more  
2           sequences of instructions for causing a router to provide differentiated service to IP packets  
3           transported on an asynchronous transfer mode (ATM) backbone, wherein execution of said  
4           one or more sequences of instructions by one or more processors contained in said router  
5           causes said one or more processors to perform the actions of:

6           provisioning a first switched virtual circuit (SVC) and a second SVC on said ATM  
7           backbone, each of said first SVC and said second SVC being provisioned as a unicast point-  
8           to-point virtual circuit terminating between same end devices;

9           receiving an IP packet;

10          determining whether to send said IP packet on said first SVC or said second SVC  
11          according to services desired to be provided for said IP packet, wherein said determining  
12          comprises examining a header of said IP packet and wherein said services desired for said  
13          IP packet being based on said header, wherein said determining further comprises  
14          maintaining a data structure table indicating a specific one of said first SVC and said second  
15          SVC on which to send IP packets having a specific precedence value in a type of service  
16          (TOS) field in said header, wherein said IP packet is sent on either said first SVC or said  
17          second SVC according to the data stored in said table; and

18            sending said IP packet on the determined one of said first SVC or said second SVC,  
              wherein said IP packet is sent on either said first SVC or said second SVC according  
              to the data stored in said data structure.

1            Claim 28 : (Canceled)

1            Claim 29 (Currently Amended): The computer readable medium of claim 27 ~~28~~,  
2            wherein said data structure comprises a table.

1            Claim 30 (Original): The computer readable medium of claim 29, wherein said table  
2            indicates that a plurality of precedence values are to be mapped to the same SVC.

1            Claim 31 (Original): The computer readable medium of claim 29, wherein said  
2            provisioning comprises initiating a set up request to another router to set up said first SVC,  
3            wherein said first router and said another router interface directly with said ATM backbone,  
4            wherein said set up request is sent only after reception of a first IP packet to be sent on said  
5            first SVC, wherein said first SVC is provisioned between said first router and said another  
6            router.

1            Claim 32 (Original): The computer readable medium of claim 31, wherein said  
2            another router also sends on said first SVC the IP packets having the same precedence value  
3            as said first IP packet.

1            Claim 33 (Previously Presented): The computer readable medium of claim 32, further  
2            comprising sending a precedence data to said another router, wherein said precedence data  
3            indicates that the precedence value of said first IP packet is to be associated with said first  
4            SVC such that another router can send packets with the same precedence value on said first  
5            SVC.

1           Claim 34 (Original): The computer readable medium of claim 33, wherein said  
2 precedence data is encoded in a broadband higher layer information (BHLL) information  
3 element (IE) contained in a signaling set up message.

1           Claim 35 (Previously Presented): The computer readable medium of claim 33,  
2 wherein said table stores an IP address, a network service access point (NSAP) of said second  
3 router, a precedence value contained in said header, and a SVC identifier in each row.

1           Claims 36 - 38 (Canceled)

1           Claim 39 (Previously Presented): A router for providing differentiated services for IP  
2 packets transported on an asynchronous transfer mode (ATM) backbone, said router  
3 comprising:

4           an inbound interface receiving an IP packet;

5           a memory storing a data structure indicating that a first switched virtual circuit (SVC)  
6 and a second SVC are provisioned on said ATM backbone, each of said first SVC and said  
7 second SVC being provisioned as a unicast point-to-point virtual circuit terminating between  
8 same end devices;

9           an encapsulator determining whether to send said IP packet on said first SVC or said  
10 second SVC according to services desired to be provided for said IP packet, said encapsulator  
11 generating a plurality of cells designed for transmission on the determined one of said first  
12 SVC or said second SVC, wherein said ATM encapsulator examines a header of said IP  
13 packet to determine whether to send said IP packet on said first SVC or said second SVC and  
14 wherein said services desired for said IP packet being based on said header, wherein said data  
15 structure indicates a specific one of said first SVC and said second SVC on which to send IP  
16 packets having a specific precedence value in a type of service (TOS) field in said header;  
17 and

18           an output interface sending said plurality of cells on said ATM backbone.

1           Claim 40 (Canceled)

1           Claim 41 (Currently Amended): The router of claim 39 ~~40~~, wherein said data structure  
comprises a table.

1           Claim 42 (Original): The router of claim 41, wherein said table indicates that a  
2 plurality of precedence values are to be mapped to the same SVC.

1           Claim 43 (Previously Presented): The router of claim 42, further comprising a  
2 signaling block for initiating a set up request to another router to set up said first SVC,  
3 wherein said set up request is sent only after reception of a first IP packet to be sent on said  
4 first SVC, wherein said first SVC is provisioned to terminate at said another router.

1           Claim 44 (Original): The router of claim 43, wherein said another router also sends  
2 on said first SVC the IP packets having the same precedence value as said first IP packet.

1           Claim 45 (Previously Presented): The router of claim 44, wherein said signaling block  
2 sends a precedence data to said another router, wherein said precedence data indicates that  
3 the precedence value of said first IP packet is to be associated with said first SVC such that  
4 another router can send packets with the same precedence value on said first SVC.

1           Claim 46 (Original): The router of claim 45, wherein said precedence data is encoded  
2 in a broadband higher layer information (BHLL) information element (IE) contained in a  
3 signaling set up message.

1           Claim 47 (Previously Presented): The router of claim 41, wherein said SVC table  
2 stores a network service access point (NSAP) address and IP address of an edge router at the  
3 next hop associated with each SVC, wherein said encapsulator sending as a key to said table  
4 a IP address of an edge router at the next hop and a precedence value in each received IP  
5 packet to determine whether to send said IP packet on said first SVC or said second SVC.

1           Claims 48 - 51: (Canceled)

1           Claim 52 (Previously Presented): The method of claim 1, wherein said ATM  
2 backbone comprises a plurality of switches, wherein said provisioning includes at least one  
3 additional switch between said same end devices for said first SVC, wherein said additional  
4 switch is contained in said plurality of switches.

1           Claim 53 (Previously Presented): The router of claim 16, wherein said ATM backbone  
2 comprises a plurality of switches, wherein said means for provisioning includes at least one  
3 additional switch between said same end devices for said first SVC, wherein said additional  
4 switch is contained in said plurality of switches.

1           Claim 54 (Previously Presented): The computer readable medium of claim 27,  
2 wherein said ATM backbone comprises a plurality of switches, wherein said provisioning  
3 includes at least one additional switch between said same end devices for said first SVC,  
4 wherein said additional switch is contained in said plurality of switches.

1           Claim 55 (Previously Presented): The router of claim 39, wherein said ATM backbone  
2 comprises a plurality of switches, wherein said first SVC contains at least one additional  
3 switch between said same end devices, wherein said additional switch is contained in said  
4 plurality of switches.



1           Claim 56 (New): A method of providing differentiated services for IP packets  
2 transported on an asynchronous transfer mode (ATM) backbone, said method comprising:  
3           provisioning a first switched virtual circuit (SVC) and a second SVC on said ATM  
4 backbone, each of said first SVC and said second SVC being provisioned as a unicast point-  
5 to-point virtual circuit terminating between same end devices,  
6           receiving an IP packet;  
7           storing in each row of a table an IP address, a network service access point (NSAP)  
8 of a second router comprised in said end devices, a precedence value contained in a header  
9 in said IP packet, and a SVC identifier;  
10          determining whether to send said IP packet on said first SVC or said second SVC  
11 according to services desired to be provided for said IP packet and the content of the rows  
12 of said table, wherein said determining comprises examining said header of said IP packet  
13 and wherein said services desired for said IP packet being based on said header, a row of said  
14 table indicating a specific one of said first SVC and said second SVC on which to send IP  
15 packets having a specific precedence value in a type of service (TOS) field in said header;  
16 and  
17          sending said IP packet on the determined one of said first SVC or said second SVC,  
18 wherein said IP packet is sent on either said first SVC or said second SVC according to the  
19 data stored in said table.

1           Claim 57 (New): The method of claim 56, wherein said table indicates that a plurality  
2 of precedence values are to be mapped to the same SVC.

1           Claim 58 (New): The method of claim 56, wherein said provisioning comprises  
2 initiating a set up request from a first router comprised in said end devices to said second  
3 router to set up said first SVC, wherein said first router and said second router interface  
4 directly with said ATM backbone, wherein said set up request is sent only after reception of  
5 a first IP packet to be sent on said first SVC, wherein said first SVC is provisioned between  
6 said first router and said second router.

1           Claim 59 (New): The method of claim 58, wherein said second router also sends on  
2           said first SVC the IP packets having the same precedence value as said first IP packet.

1           Claim 60 (New): The method of claim 59, further comprising sending a precedence  
2           data from said first router to said second router, wherein said precedence data indicates that  
3           the precedence value of said first IP packet is to be associated with said first SVC such that  
4           said second router can send packets with the same precedence value on said first SVC.

1           Claim 61 (New): A computer readable medium carrying one or more sequences of  
2           instructions for causing a router to provide differentiated services to IP packets transported  
3           on an asynchronous transfer mode (ATM) backbone, wherein execution of said one or more  
4           sequences of instructions by one or more processors contained in said router causes said one  
5           or more processors to perform the actions of:

6           provisioning a first switched virtual circuit (SVC) and a second SVC on said ATM  
7           backbone, each of said first SVC and said second SVC being provisioned as a unicast point-  
8           to-point virtual circuit terminating between said router and another router,

9           receiving an IP packet;

10          storing in each row of a table an IP address, a network service access point (NSAP)  
11          of said another router, a precedence value contained in a header in said IP packet, and a SVC  
12          identifier;

13          determining whether to send said IP packet on said first SVC or said second SVC  
14          according to services desired to be provided for said IP packet and the content of the rows  
15          of said table, wherein said determining comprises examining said header of said IP packet  
16          and wherein said services desired for said IP packet being based on said header, a row of said  
17          table indicating a specific one of said first SVC and said second SVC on which to send IP  
18          packets having a specific precedence value in a type of service (TOS) field in said header;  
19          and

20          sending said IP packet on the determined one of said first SVC or said second SVC,  
21          wherein said IP packet is sent on either said first SVC or said second SVC according to the  
22          data stored in said table.

1           Claim 62(New): The computer readable medium of claim 61, wherein said table  
2 indicates that a plurality of precedence values are to be mapped to the same SVC.

1           Claim 63 (New): The computer readable medium of claim 61, wherein said  
2 provisioning comprises initiating a set up request from said router to said another router to  
3 set up said first SVC, wherein said router and said another router interface directly with said  
4 ATM backbone, wherein said set up request is sent only after reception of a first IP packet  
5 to be sent on said first SVC, wherein said first SVC is provisioned between said router and  
6 said another router.

1           Claim 64 (New): The computer readable medium of claim 63, wherein said another  
2 router also sends on said first SVC the IP packets having the same precedence value as said  
3 first IP packet.

1           Claim 65 (New): The computer readable medium of claim 64, further comprising  
2 sending a precedence data from said router to said another router, wherein said precedence  
3 data indicates that the precedence value of said first IP packet is to be associated with said  
4 first SVC such that said another router can send packets with the same precedence value on  
5 said first SVC.

1           Claim 66(New): A router for providing differentiated services for IP packets  
2 transported on an asynchronous transfer mode (ATM) backbone, said router comprising:  
3           an inbound interface receiving an IP packet;  
4           a memory storing a table, each row of said table storing an IP address, a network  
5 service access point (NSAP) of another router, a precedence value contained in a header in  
6 said IP packet, and a SVC identifier in each row, said table indicating that a first switched  
7 virtual circuit (SVC) and a second SVC are provisioned on said ATM backbone, each of said  
8 first SVC and said second SVC being provisioned as a unicast point-to-point virtual circuit  
9 terminating between said router and said another router;  
10           an encapsulator determining whether to send said IP packet on said first SVC or said  
11 second SVC according to services desired to be provided for said IP packet, said encapsulator

12 generating a plurality of cells designed for transmission on the determined one of said first  
13 SVC or said second SVC, wherein said ATM encapsulator examines said header of said IP  
14 packet to determine whether to send said IP packet on said first SVC or said second SVC and  
15 wherein said services desired for said IP packet being based on said header, wherein said  
16 table indicates a specific one of said first SVC and said second SVC on which to send IP  
17 packets having a specific precedence value in a type of service (TOS) field in said header;  
18 and  
19 an output interface sending said plurality of cells on said ATM backbone.

1 Claim 67 (New): The router of claim 66, wherein said table indicates that a plurality  
2 of precedence values are to be mapped to the same SVC.

1 Claim 68 (New): The router of claim 66, further comprising a signaling block for  
2 initiating a set up request to said another router to set up said first SVC, wherein said set up  
3 request is sent only after reception of a first IP packet to be sent on said first SVC, wherein  
4 said first SVC is provisioned to terminate at said another router.

1 Claim 69 (New): The router of claim 68, wherein said another router also sends on  
2 said first SVC the IP packets having the same precedence value as said first IP packet.

1 Claim 70 (New): The router of claim 69, wherein said signaling block sends a  
2 precedence data to said another router, wherein said precedence data indicates that the  
3 precedence value of said first IP packet is to be associated with said first SVC such that said  
4 another router can send packets with the same precedence value on said first SVC.